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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/615,104	07/13/2000	Takashi Ohsaki	M1873-21	4085

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145 North Fifth Avenue
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EXAMINER

HENDRICKSON, STUART L

ART UNIT	PAPER NUMBER
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1754

9

DATE MAILED: 12/09/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N

61519

Applicant(s)

dsaki

Examiner

Hendrickson

Group Art Unit

1781

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

☒ Responsive to communication(s) filed on 10/15/02

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 1 1; 453 O.G. 213.

Disposition of Claims

☒ Claim(s) 1-12 is/are pending in the application.

Of the above claim(s) 10-12 is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-9 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☒ Claim(s) 1-12 are subject to restriction or election requirement

Application Papers

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).

☐ All ☐ Some* ☐ None of the:

☐ Certified copies of the priority documents have been received.

☐ Certified copies of the priority documents have been received in Application No. _____

☐ Copies of the certified copies of the priority documents have been received

in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☒ Notice of Reference(s) Cited, PTO-892

☐ Notice of Informal Patent Application, PTO-152

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☒ Other: mail note

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The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action. Concerning the restriction, there is a burden of search.

Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Jose-Yacaman et al article, with Ota et al. and Nolan et al. cited for inherent properties.

The article teaches on pg. 657 and 659 carbon nanotubes of rolled graphitic planes (hollow nanotubes). The material is compared to that of the very well known Iijima Nature 1991 product, which has a diameter of 1nm, as reported by Ohta et al. column 1. Therefore, it has the diameter claimed. The difference between the outer and inner diameter is about the thickness of a few carbon atoms, so the limitation is deemed met. It is deemed to possess hydrogen because of the teaching of Nolan et al. column 1-2. Therefore, the fiber of Yacaman is deemed to possess the claimed properties, and was made using an iron catalyst. No differences are seen, especially as the synthesis is similar to that presently disclosed.

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Ohta et al, with Nolan et al. cited for inherent properties.

Ohta teaches in column 5-6 hydrogenated fullerene materials bonded together to make generally cylindrical structures of the claimed diameter, such as in fig 1A. From the bond length, the diameter is readily calculated to be within the claimed range. The implied thickness of 1 carbon atom means that the difference between inner and outer diameter is small. Even so, the difference between largest diameter and smallest is readily seen to be a few C-C bond lengths; a few angstroms. While hydrogen is not taught to be present in the C60 bulge, it is deemed present, since 1) it was there before the fabrication of the structure and only 1 atom is required by the claims and 2) Nolan column 2 indicates the presence of hydrogen even in so-called hydrogen-free systems. Therefore, the material of Ohta is deemed to possess the claimed properties.

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Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Endo et al. article, taken with Nolan to show a state of fact.

Endo teaches, particularly in fig. 5, a hollow nanotube having the claimed diameters. No hydrogen is mentioned, however it was made from benzene/hydrogen, which Nolan indicates inherently contributes hydrogen. Fig. 3 shows aggregates, made from an iron catalyst. Claim 5 is deemed met, as the 0.1 % hydrogen is deemed a trace impurity amount.

Applicant's arguments filed 10/15/02 have been fully considered but they are not persuasive.

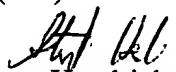
The argument that tubular distinguishes over spiral/helical is not accepted, as spiral is also tubular. Moreover, helical appears only to describe the 'grain' of the hexagon lattice and not to the gross physical form. In other words, it is a tube 'rolled up' in a way that make the hex grain spiral around in a helical fashion. Jose-Yacaman's acetylene contains even more hydrogen per carbon than benzene, so it would appear to contain hydrogen even if Nolan is mistaken. Concerning Ohta, the claims do not exclude a bulge, and are broad enough to encompass one.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication should be directed to examiner Hendrickson at telephone number (703) 308-2539.


Stuart Hendrickson
examiner Art Unit 1754